

**REMARKS/ARGUMENTS**

Claims 1-11 are presently pending in this application. The specification is objected to, and each of claims 1-11 are substantively rejected. A Preliminary Amendment was filed via facsimile on August 12, 2003. In a telephone conference between the Examiner and the undersigned on June 21, 2004, it was determined that the Preliminary Amendment has not yet been matched with to file. To expedite prosecution, Applicant submits herewith a copy of that Preliminary Amendment along with an "Auto-Reply Facsimile Transmission" sheet, evidencing successful transmission to the U.S. Patent and Trademark Office. Claims 1, 5, 6, 7, 8, and 10 are currently amended to address possible antecedent basis issues.

**Objection to the Specification**

The disclosure was objected to because a Brief Description of the Drawing is absent. Applicant has amended the Specification to include a Brief Description of the Drawings. Withdrawal of this objection is respectfully requested.

**Rejection Under 35 U.S.C. §112**

Claims 1-11 were rejected under 35 U.S.C. §112, second paragraph, as allegedly failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Office Action alleges that the relationship between the claimed process steps to the flow chart in the drawing is unclear, and requests explanation of where the claimed steps are located in the flow chart. The Office Action also alleges that recitation of "precipitation of metal" in claim 3 is unclear.

**Flow Chart**

According to MPEP 2174, if a description or the enabling disclosure of a specification is not commensurate in scope with the subject matter encompassed by a claim, that fact alone does not render the claim imprecise or indefinite or otherwise not in compliance with 35 U.S.C. 112, second paragraph; rather, the claim is based on an insufficient disclosure (35 U.S.C. 112, first paragraph) and should be rejected on that ground.

For the purposes of expediting prosecution, however, the issue of whether the claims are supported by a sufficient disclosure is addressed as follows. It is well established that an enabling disclosure is not limited to the drawings; claims can find support in the specification. Elements of presently pending claim 1 can find support in specification as follows.

See, for example, page 3, lines 4-10.

Thus, according to the present invention, there is now provided a hydrometallurgical process for producing metal-containing sulfide ores and concentrates, comprising reacting said metal-containing sulfide with concentrated sulfuric acid at a temperature of between about 300°C and 400°C in the presence of oxygen to produce a solid metal sulfate product and a gaseous product which is primarily SO<sub>3</sub>, wherein said metal is selected from the group consisting of iron, copper, zinc, nickel, cobalt and manganese.

See also the paragraph bridging pages 5 and 6, referring to Example 1.

A sample of sulfide waste was milled in a ball mill to a size -75 micron -100%, then it was mixed at room temperature with concentrated sulfuric acid in a ratio 1:0.94 by weight. Mixing was made during 30 min., then the mixture obtained was loaded to a tube furnace, where the sulfatization process occurred at 338°C. Air was blown during the sulfatization process. The amount of air required was 1900 l/1 kg of sulfide waste, that is 200% of the amount theoretically required according to reaction (7). Sulfatization time is 2 hours. Gas SO<sub>3</sub> escaping at sulfatization is forwarded to scrubbers for precipitations I, II or III.

It is respectfully submitted that the presently pending claims find support in the specification. Illustrative representations of claim elements can also be found in **Fig. 1**, toward the top of the figure. For example, sulfuric acid can be represented as the "H<sub>2</sub>SO<sub>4</sub>," the sulfidic materials can be represented as the "sulfide waste," and the reaction between the two can be represented by the "mixing" and the "sulfatization." SO<sub>3</sub> can be represented by the SO<sub>3</sub>.

### **Claim 3**

The Preliminary Amendment of August 12, 2003 amended claim 3 to recite "metallic sulfates" instead of "metal" thus mooting this rejection. Withdrawal of this rejection is respectfully requested.

As an informal matter, it is noted that the instant application names a sole inventor, and not joint inventors, as suggested by the Office Action on page 3.

First Rejection Under 35 U.S.C. §103

Claims 1, 2, 5, and 7 were rejected under 35 U.S.C. §103(a) as allegedly obvious in light of U.S. Patent No. 4,003,740 to Huggins et al. [“Huggins”]. This rejection is respectfully traversed.

According to MPEP 2142, establishment of a *prima facie* case of obviousness requires, among other things, that the cited reference, or an obvious modification thereof, must teach or suggest all the claim limitations. Applicant respectfully submits that the Office Action has not met either of these requirements.

Briefly, presently pending claim 1 is drawn to a method that includes, *inter alia*, reacting metal-containing sulphidic materials with concentrated sulfuric acid in the presence of oxygen to produce a solid metal sulfate product

Huggins is cited as teaching a process of forming copper sulfate from ore using concentrated sulfuric acid. The Action acknowledges that Huggins fails to explicitly disclose reacting sulfidic materials in the presence of oxygen, but asserts that it would have been obvious to the artisan to expect oxygen to be present during the reaction. Although it is not clear whether this is an inherency rejection, an obviousness rejection, or both, it is submitted that the cited reference renders the presently pending claims neither inherently anticipated nor obvious.

Huggins describes the liberation of oxygen during a “roasting” step, wherein sulfate is heated to produce a roasted solid. See Huggins at col. 3, lines 41-57, col. 4, lines 37-49, and claim 1, step (f). However, this roasting step is reported as occurring *subsequent* to the step where sulfidic residual material is treated with sulfuric acid and heat to form the sulfate. See Huggins at col. 4, lines 29-36 and claim 1, step (c). Thus, even assuming the proposed modification of Huggins, this reference still fails to disclose a method that includes reacting metal-containing sulphidic materials with concentrated sulfuric acid in the presence of oxygen to produce a solid metal sulfate product, as recited in presently pending claim 1.

Applicant submits, consequently, that a *prima facie* case of obviousness has not been made with respect to claim 1. Claims 2-11 depend from, either directly or indirectly, claim 1. Applicant submits that because a *prima facie* case of obviousness has not been established against claim 1, obviousness does not apply to claims 2-11. Withdrawal of this rejection is respectfully requested.

Second Rejection Under 35 U.S.C. §103

Claims 1-11 were rejected under 35 U.S.C. §103(a) as allegedly obvious in light of U.S. Patent No. 3,860,696 to McGauley et al. [“McGauley”]. This rejection is respectfully traversed.

As noted above, presently pending claim 1 is drawn to a method that includes, *inter alia*,

reacting metal-containing sulphidic materials with concentrated sulfuric acid in the presence of oxygen to produce a solid metal sulfate product

McGauley is cited as teaching the production of iron sulfate from iron sulfide mineral feed. Yet McGauley fails to teach or suggest reacting metal-containing sulphidic materials with concentrated sulfuric acid in the presence of oxygen, as presently claimed. And there is no suggestion that such a modification of McGauley would be obvious. What is more, as discussed above, Huggins fails to teach these presently claimed elements, and therefore fails to remedy this deficiency of McGauley. Because McGauley, either alone or in combination with Huggins, fails to teach each and every element of presently pending claim 1, withdrawal of this rejection is respectfully requested.

Claims 2-11 depend from, either directly or indirectly, claim 1. Applicant submits that because a *prima facie* case of obviousness has not been established against claim 1, obviousness does not apply to claims 2-11. Withdrawal of this rejection is respectfully requested.

Appl. No. 09/830,830  
Amdt. dated June 28, 2004  
Reply to Office Action of February 27, 2004

PATENT

**CONCLUSION**

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



Nathan S. Cassell  
Reg. No. 42,396

TOWNSEND and TOWNSEND and CREW LLP

Two Embarcadero Center, Eighth Floor

San Francisco, California 94111-3834

Tel: 650-326-2400

Fax: 415-576-0300

Attachments

- Preliminary Amendment of August 12, 2003
- including
  - Transmittal Form
  - Facsimile Communication Result Report, and
  - USPTO Auto-Reply Facsimile Transmittal

NSC:sr  
60241252 v1